THAT WHICH IS CLAIMED:

1. An expansion module configured to be disposed between an avionic device connector of an avionic device and a corresponding aircraft connector of an aircraft for providing a plurality of electrical junctions between the avionic device and the aircraft for electrical transmissions therebetween and communicating a signal representative of at least one of the electrical transmissions therefrom to a communication network, the expansion module comprising:

a first connector having a plurality of electrical terminals configured to mechanically engage and thereby electrically connect to the aircraft connector;

a second connector having a plurality of electrical terminals configured to mechanically engage and thereby electrically connect to the avionic device connector; and

an electrical circuit defining a plurality of electrical junctions between the electrical terminals of the first and second connectors for connecting the aircraft connector and the avionic device, the circuit configured to communicate a signal representative of at least one of the electrical transmissions between the avionic device and the aircraft to the communication network.

2. An expansion module according to Claim 1 wherein the electrical terminals of the second connector are structured to correspond to the electrical terminals of the first connector such that the expansion module is configured to be disposed between the corresponding avionic device connector and aircraft connector.

3. An expansion module according to Claim 1 wherein the electrical terminals of the first and second connectors are ARINC-type connection elements configured to connect to ARINC-type connection elements of the avionic device and aircraft connectors.

4. An expansion module according to Claim 1 wherein the electrical circuit is configured to communicate the signal over an Ethernet connection to an Ethernet communication network.

5. An expansion module according to Claim 1 wherein the terminals of the first connector are female socket elements configured to receive male pin elements of the aircraft connector, and the terminals of the second connector are male pin elements configured to be received by female socket elements of the avionic device connector.

6. An expansion module according to Claim 1 further comprising at least one printed circuit board defining the electrical circuit, wherein the first and second connectors are mounted on the at least one circuit board.

7. An expansion module according to Claim 1 wherein the electrical circuit is configured to connect to a power source and the expansion module is configured to provide the electrical junctions for the electrical transmissions between the avionic device and the aircraft when the electrical circuit is not powered.

8. An expansion module according to Claim 1 wherein the expansion module is configured to transmit the electrical transmissions between the avionic device and the aircraft without substantially modifying the transmissions.

9. An apparatus for receiving an avionic device on an aircraft and providing a plurality of electrical junctions between an avionic device connector of the avionic device and an aircraft connector of the aircraft for electrical transmissions therebetween, the apparatus comprising:

a tray configured to receive the avionic device and secure the avionic device to the aircraft; and

an expansion module structured to be received by the tray, the expansion module comprising:

a first connector having a plurality of electrical terminals configured to mechanically engage and thereby electrically connect to the aircraft connector;

a second connector having a plurality of electrical terminals configured to mechanically engage and thereby electrically connect to the avionic device connector when the avionic device is received by the tray; and

an electrical circuit defining a plurality of electrical junctions between the electrical terminals of the first and second connectors for connecting the

aircraft connector and the avionic device, the circuit configured to communicate a signal representative of at least one of the electrical transmissions between the avionic device and the aircraft to the communication network,

wherein the expansion module is received by the tray such that the expansion module connects the avionic device and the aircraft when the avionic device is received by the tray and thereby secured to the aircraft.

10. An apparatus according to Claim 9 wherein the electrical terminals of the second connector are structured to correspond to the electrical terminals of the first connector such that the expansion module is configured to be disposed between the corresponding avionic device connector and aircraft connector.

11. An apparatus according to Claim 9 wherein the electrical terminals of the first and second connectors are ARINC-type connection elements configured to connect to ARINC-type connection elements of the avionic device connector and aircraft connector.

12. An apparatus according to Claim 9 wherein the electrical circuit is configured to communicate the signal over an Ethernet connection to an Ethernet communication network.

13. An apparatus according to Claim 9 wherein the terminals of the first connector are female socket elements configured to receive male pin elements of the aircraft connector, and the terminals of the second connector are male pin elements configured to be received by female socket elements of the avionic device connector.

14. An apparatus according to Claim 9 further comprising at least one printed circuit board defining the electrical circuit, wherein the first and second connectors are mounted on the at least one circuit board.

15. An apparatus according to Claim 9 wherein the electrical circuit is configured to connect to a power source and the apparatus is configured to provide the electrical

junctions for the electrical transmissions between the avionic device and the aircraft when the electrical circuit is not powered.

16. An apparatus according to Claim 9 wherein the expansion module is configured to transmit the electrical transmissions between the avionic device and the aircraft without substantially modifying the transmissions.

17. A communication network for communicating signals representative of electrical transmissions occurring between a plurality of avionic devices, each having an avionic device connector, and an aircraft having a plurality of aircraft connectors, each aircraft connector corresponding to a respective one of the avionic devices, the communication network comprising:

at least two expansion modules configured for communicating with the network, each expansion module comprising:

a first connector having a plurality of electrical terminals configured to mechanically engage and thereby electrically connect to a respective one of the aircraft connectors;

a second connector having a plurality of electrical terminals configured to mechanically engage and thereby electrically connect to a respective one of the avionic device connectors; and

an electrical circuit defining a plurality of electrical junctions between the electrical terminals of the first and second connectors for connecting the aircraft connector and the avionic device, the circuit configured to transmit a signal representative of at least one of the electrical transmissions between the avionic device and the aircraft.

18. A communication network according to Claim 17 further comprising a controller in electrical communication with each of the expansion modules, the controller being configured to receive the signals transmitted by the expansion modules.

19. A communication network according to Claim 18 wherein the controller provides power to the circuits of the expansion connectors.

20. A communication network according to Claim 17 further comprising a communication device configured to transmit data from the communication network from the aircraft via a radio signal to at least one of a second aircraft, a satellite, and a ground-based receiver.

21. A communication network according to Claim 17 further comprising a data storage device for recording data from the network, the data storage device being in communication with the expansion modules.

22. A communication network according to Claim 17 wherein the electrical terminals of each second connector are structured to correspond to the electrical terminals of a respective first connector such that each expansion module is configured to be disposed between one of the corresponding avionic device connectors and a corresponding one of the aircraft connectors.

23. A communication network according to Claim 17 wherein the electrical terminals of the first and second connectors are ARINC-type connection elements configured to connect to ARINC-type connection elements of the avionic device connectors and aircraft connectors.

24. A communication network according to Claim 17 wherein the electrical circuit of each expansion module is configured to communicate the signals over Ethernet connections.

25. A communication network according to Claim 17 wherein the terminals of each first connector are female socket elements configured to receive male pin elements of a respective aircraft connector, and the terminals of each second connector are male pin elements configured to be received by female socket elements of a respective avionic device connector.

26. A communication network according to Claim 17 wherein each expansion module includes at least one printed circuit board defining the electrical circuit, and the first and second connectors are mounted on the at least one circuit board.

27. A communication network according to Claim 17 wherein the electrical circuit of each expansion module is configured to connect to a power source, and each expansion module is configured to provide the electrical junctions for the electrical transmissions when the electrical circuit is not powered.

28. A communication network according to Claim 17 wherein the expansion modules are configured to transmit the electrical transmissions between the avionic devices and the aircraft without substantially modifying the transmissions.

29. A method for retrofitting an aircraft having a plurality of avionic devices with avionic device connectors connected to aircraft connectors of the aircraft, the method comprising:

disconnecting an avionic device connector of a first avionic device from a respective aircraft connector;

disposing an expansion module between the avionic device connector and the aircraft connector such that the expansion module connects the avionic device to the aircraft;

delivering an electrical transmission between the avionic device and the aircraft via the expansion module;

generating a signal representative of the electrical transmission in the expansion module;

communicating the signal from the expansion module.

30. A method according to Claim 29 further comprising receiving the signal in a controller.

31. A method according to Claim 29 further comprising storing data characteristic of the signal in a data storage device.

32. A method according to Claim 29 further comprising transmitting data characteristic of the signal via a radio signal to at least one of a second aircraft and a ground-based receiver.

33. A method according to Claim 29 wherein said communication step comprises communicating the signal via an Ethernet network.

34. A method according to Claim 29 wherein said generating and communicating steps comprises generating and communicating the signal without substantially modifying the electrical transmission between the avionic device and the aircraft.

35. A method according to Claim 29 further comprising repeating the disconnecting and disposing steps such that a plurality of expansion modules are disposed between the aircraft and respective avionic devices.